Listing of Claims:

Claims 1 and 2 (Canceled).

3. (Currently Amended) ~~The~~ A microdissection apparatus ~~according to claim 2, further~~ comprising:

a laser light source to emit laser light; and

a laser light irradiation optical system to irradiate a sample with the laser light from the laser light source;

wherein the laser light irradiation optical system comprises: (i) an active optical element on which a variable pattern set to correspond to a necessary area is formed, and (ii) an objective lens which is positioned between the active optical element and the sample;

wherein the laser light is irradiated through the active optical element on which the variable pattern is formed, and guided to the sample by the objective lens so that a part of the sample excluding the necessary area is irradiated with the laser light; and

wherein the apparatus further comprises:

a pattern image projection optical system, which projects an image of the pattern formed on the active optical element onto the sample; and

an observation optical system, which acquires an observation image of the sample.

4. (Previously Presented) The microdissection apparatus according to claim 3, further comprising a display unit to display the observation image acquired by the observation optical system, and an input unit to input information for setting the pattern formed on the active optical element.

5. (Previously Presented) The microdissection apparatus according to claim 3, further comprising a control unit to set the pattern formed on the active optical element based on the observation image acquired by the observation optical system.

Claim 6 (Canceled).

7. (Currently Amended) ~~The~~ A microdissection apparatus ~~according to claim 1,~~ comprising:

a laser light source to emit laser light; and

a laser light irradiation optical system to irradiate a sample with the laser light from the laser light source;

wherein the laser light irradiation optical system comprises: (i) an active optical element on which a

variable pattern set to correspond to a necessary area is formed, and (ii) an objective lens which is positioned between the active optical element and the sample;

wherein the laser light is irradiated through the active optical element on which the variable pattern is formed, and guided to the sample by the objective lens so that a part of the sample excluding the necessary area is irradiated with the laser light;

wherein the laser light irradiation optical system further comprises a relay lens which is removably inserted into an optical path between the active optical element and the objective lens, and a relay lens insertion/removal mechanism to insert and remove the relay lens into and from the optical path;

wherein when the relay lens is inserted in the optical path, the active optical element forms the pattern corresponding to the necessary area, and the laser light irradiation optical system selectively irradiates the part of the sample excluding the necessary area with the laser light in accordance with the pattern formed on the active optical element; and

wherein when the relay lens is removed from the optical path, the laser light irradiation optical system converges a beam of laser light by the objective lens to irradiate the sample with the converged beam.

8. (Previously Presented) The microdissection apparatus according to claim 7, wherein, when the relay lens is removed from the optical path, the converged beam of laser light has an energy density sufficient for evaporating the sample.

9. (Previously Presented) The microdissection apparatus according to claim 8, further comprising a movement mechanism, which relatively moves the sample and a beam spot of the converged beam of laser light formed on the sample;

wherein the beam spot of the laser light is relatively moved on the sample by the movement mechanism completely around an area to be collected including the necessary area, and a part of the sample irradiated with the converged beam of laser light is evaporated to be cut, such that the area to be collected including the necessary area is cut from the sample.

Claims 10-13 (Canceled)

14. (Currently Amended) ~~The~~ A microdissection apparatus ~~according to claim 13, further~~ comprising:

light source means for emitting laser light; and

a laser light irradiation optical system to irradiate a sample with the laser light from the light source means;

wherein the laser light irradiation optical system comprises: (i) pattern forming means for transmitting or reflecting the laser light selectively in accordance with a variable pattern which is set to correspond to a necessary area, and (ii) an objective lens which is positioned between the pattern forming means and the sample;

wherein the laser light is irradiated to the sample through the variable pattern formed by the pattern forming means, and guided to the sample by the objective lens so that a part of the sample excluding the necessary area is irradiated with the laser light;

wherein the apparatus further comprises:

a pattern image projection optical system for projecting an image of the pattern formed by the pattern forming means onto the sample; and

an observation optical system for acquiring an observation image of the sample.

15. (Original) The microdissection apparatus according to claim 14, further comprising displaying means for displaying the observation image acquired by the observation optical system, and inputting means for inputting information for setting the pattern formed by the pattern forming means.

16. (Previously Presented) The microdissection apparatus according to claim 14, further comprising a controller for setting the pattern formed by the pattern forming means based on the observation image acquired by the observation optical system.

Claim 17 (Canceled).

18. (Currently Amended) ~~The~~ A microdissection apparatus ~~according to claim 12,~~ comprising:

light source means for emitting laser light; and

a laser light irradiation optical system to irradiate a sample with the laser light from the light source means;

wherein the laser light irradiation optical system comprises: (i) pattern forming means for transmitting or reflecting the laser light selectively in accordance with a variable pattern which is set to correspond to a necessary area, and (ii) an objective lens which is positioned between the pattern forming means and the sample;

wherein the laser light is irradiated to the sample through the variable pattern formed by the pattern forming means, and guided to the sample by the objective lens so that a part of

the sample excluding the necessary area is irradiated with the laser light;

wherein the laser light irradiation optical system further comprises a relay lens, which is removably inserted into an optical path between the pattern forming means and the objective lens, and a relay lens insertion/removal mechanism, which inserts and removes the relay lens into and from the optical path;

wherein when the relay lens is inserted in the optical path, the pattern forming means forms the pattern corresponding to the necessary area, and the laser light irradiation optical system selectively irradiates the part of the sample excluding the necessary area with the laser light in accordance with the pattern formed on the pattern forming means; and

wherein when the relay lens is removed from the optical path, the laser light irradiation optical system converges a beam of laser light by the objective lens to irradiate the sample with the converged beam.

19. (Previously Presented) The microdissection apparatus according to claim 18, wherein, when the relay lens is removed from the optical path, the converged beam of laser light has an energy density sufficient for evaporating the sample.

20. (Previously Presented) The microdissection apparatus according to claim 19, further comprising moving means for relatively moving the sample and a beam spot of the converged beam of laser light formed on the sample;

wherein the beam spot of the laser light is relatively moved on the sample by the moving means completely around an area to be collected including the necessary area, and a part of the sample irradiated with the converged beam of laser light is evaporated to be cut, such that the area to be collected including the necessary area is cut from the sample.

Claims 21-24 (Canceled).

25. (Currently Amended) ~~The~~ A microdissection method ~~according to claim 24, further~~ comprising:

forming a variable pattern on an active optical element such that the pattern is set to correspond to a necessary area of a sample;

irradiating the active optical element with laser light; and

guiding the laser light from the active optical element to the sample, via an objective lens positioned between the active optical element and the sample, so as to irradiate a part of the sample excluding the necessary area with the laser light;

wherein a part of the sample which surrounds the necessary area is selectively irradiated with the laser light in accordance with the pattern formed on the active optical element and is evaporated, thereby cutting the necessary area from the sample; and

wherein the method further comprises:

projecting an image of the pattern formed on the active optical element onto the sample;

obtaining an observation image of the sample; and

setting the pattern formed on the active optical element based on the obtained observation image.

26. (Currently Amended) ~~The~~ A microdissection ~~apparatus according to claim 23,~~ method comprising:

forming a variable pattern on an active optical element such that the pattern is set to correspond to a necessary area of a sample;

irradiating the active optical element with laser light; and

guiding the laser light from the active optical element to the sample, via an objective lens positioned between the active optical element and the sample, so as to irradiate a part of the sample excluding the necessary area with the laser light;

wherein the part of the sample excluding the necessary area is selectively irradiated with the laser light in accordance with the pattern formed on the active optical element, and the selective irradiation of the laser light is repeatedly performed while changing positions on the sample that are irradiated to irradiate all desired positions on the sample; ~~and~~

wherein the method further comprises converging a beam of the irradiated laser light onto a beam spot on the sample; and

relatively moving the beam spot of the converged beam of laser light with respect to the sample completely around an area to be collected including the necessary area;

wherein a part of the sample irradiated with the converged beam of laser light is evaporated, such that the area to be collected including the necessary area is cut from the sample.

Claims 27-29 (Canceled).

30. (Previously Presented) The microdissection apparatus according to claim 3, wherein the objective lens of the laser light irradiation optical system is also part of the observation optical system.

Claim 31 (Canceled).

32. (Previously Presented) The microdissection apparatus according to claim 3, wherein the observation optical system comprises an erecting microscope.

33. (Previously Presented) The microdissection apparatus according to claim 3, wherein the observation optical system comprises an inverted microscope.

Claims 34-36 (Canceled).